Mississippi National River and Recreation Area
Minneapolis / Saint Paul Metropolitan Area, Minnesota

National Park Service
U.S. Department of the Interior

Open Space Protection Opportunities
Guidebook

October 2006 Edition

Table of Contents

Introduction

On November 18, 1988, Public Law 100-696 established the 54,000-acre Mississippi National River and Recreation Area (MNRRA) as a unit of the national park system. The MNRRA extends for 72 miles from the Minnesota cities of Dayton and Ramsey to just south of Hastings, plus four miles of the Minnesota River. It includes portions of five counties and 25 local communities.

The 1995 Comprehensive Management Plan (CMP) for the MNRRA identifies the protection of open space along the Mississippi River as a high priority. It articulates the vision to provide "a continuous trail and open space corridor along the Mississippi River in the Twin Cities area while protecting the area's natural, cultural, and economic resources."

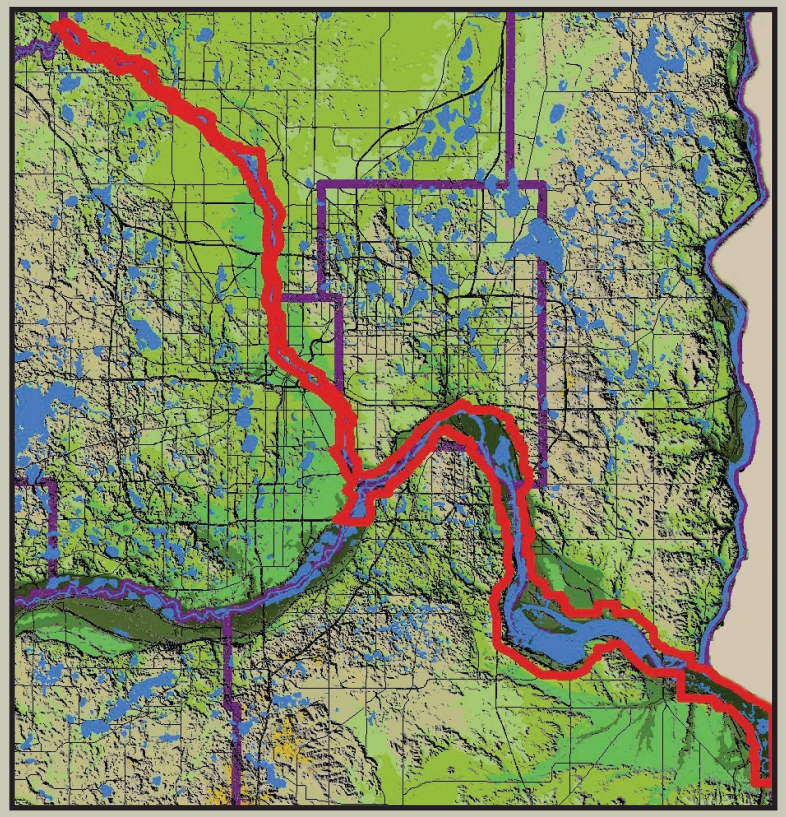

Figure 1. The Mississippi National River and Recreation Area corridor (in red).

Figure 2. Undeveloped land in the MNRRA.

Since 1995, the National Park Service (NPS) has developed a number of tools (databases and maps) and has provided matching grants and technical assistance to help local communities achieve CMP goals for open space and resource protection in the MNRRA corridor. The CD-ROM distributed with this guidebook, first issued in January 2003, is one of these tools. It provides two series of river corridor maps that are intended to be used to identify and assess undeveloped land that has the potential to be protected or restored as open space. (Open space is defined in the MNRRA CMP as public or private land that is retained as primarily undeveloped. This could include lands devoted to active or passive recreational use, or lands retained for visual or natural resource protection purposes.)

This guidebook provides background information to help understand and apply the Open Space Protection Opportunities (OSPO) data contained on the CD-ROM. The OSPO data provide information on the existing condition and ecological value of the undeveloped land areas in the MNRRA. It is our intent that this information be used in combination with other data to further MNRRA CMP goals for open space protection. It can also be used as a resource for other river corridor land use planning and development activities.

Ecological Analysis & Open Space Protection Opportunities

Inventory

This product was developed using landcover data classified using the Minnesota Land Cover Classification System (MLCCS). This system of landcover classification was developed by a variety of

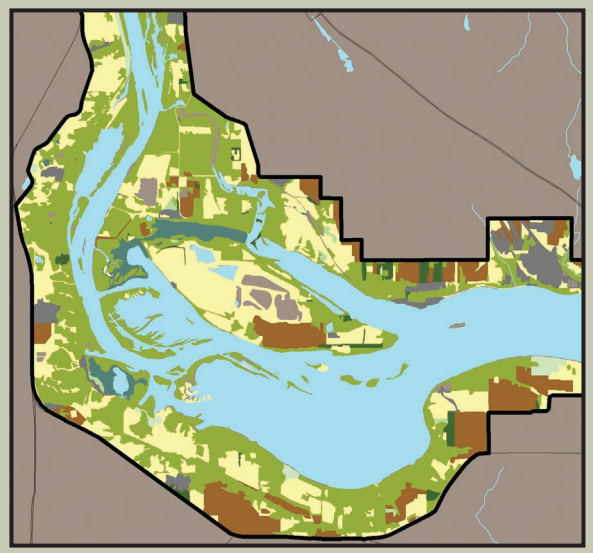

Figure 3. Detail of the MLCCS landcover data layer.

partners including the Minnesota Department of Natural Resources, Great River Greening (GRG), Dakota County, and the NPS. The combined expertise of botanists, ecologists, and GIS specialists was drawn upon in the development of this methodology, designed specifically for the type of vegetation found in the Twin Cities metro area and the aerial photography available for the region. The result of this effort is the most in-depth landcover inventory available for the MNRRA. This detailed picture of existing landcover provided valuable information for this evaluation of open space protection opportunities in the MNRRA.

Ecological Protocol

An existing ecological protocol developed by the Dakota County Soil and Water Conservation District for ranking MLCCS data was used as a template to develop a new OSPO protocol for the MNRRA. This modified protocol, developed by Great River Greening, was then used to conduct an ecological analysis specific to the MNRRA corridor. GRG first tested this methodology in a smart growth study called the "Mississippi River Initiative" sponsored by the Metropolitan Council. Additional documentation on this ecological assessment protocol can be found on the OSPO CD-ROM.

Criteria Scoring

The MNRRA OSPO analysis scores all landcover areas by patch size, landcover diversity, stream vegetation, lakeshore vegetation, undeveloped lakeshore, rare wildlife & plant species locations, habitat needs of indicator wildlife species, and other land use data such as urban spaces and areas having greater than 11% impervious surface. In the analysis, each landcover polygon was assigned a numeric score for

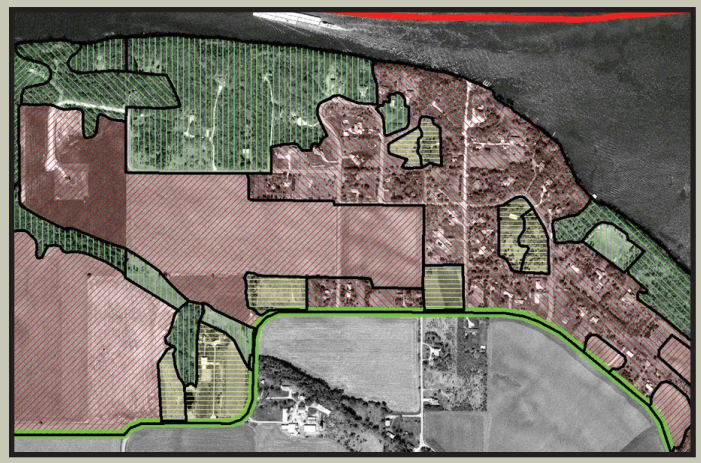

Figure 4. Ranking of the MNRRA OSPO polygons. Red areas rank low in ecological value, and generally indicate areas of agriculture or urban development. Green areas rank high in ecological value, indicating undeveloped areas and wildlife habitat.

each protocol criterion and a cumulative score for all criteria combined.

Ecological Ranking

The OSPO data layer incorporates a ranked classification scheme for the cumulative ecological scores assigned to the MNRRA landcover polygons (see figure 6). This scheme is based on the premise that undeveloped areas with high ecological value should be given priority consideration for protection. This information can be considered with a variety of other factors when making land use decisions in the MNRRA. The OSPO maps produced using this ranking scheme indicate where the most ecologically valuable areas are located. However, lands that do not rank high ecologically should be further evaluated for their open space value and/or for their restoration potential.

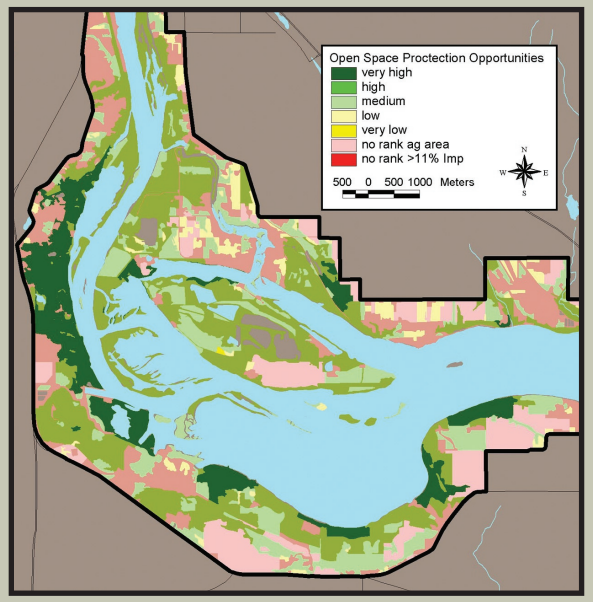

Figure 5. Detail of the OSPO data layer.

Open Space Protection Opportunities Protocol

Vegetation Criteria: Scoring MLCCS Polygons	Value (1-10)
Large blocks of natural/semi-natural habitat:	
(Large, Medium, Small)	10,7,4
Minnesota County Biological Survey Sites	10
Native MLCCS polygons	8
Non-Native (Semi-natural) MLCCS polygons	6
Planted/Maintained (pasture, hayfields, tree farms, etc.)	4
Urban Green Space (parks, cemeteries, etc.)	3
Urban Areas < 11% Impervious Cover	1
Vegetated Stream Corridors (300 ft. buffer)	5
Undeveloped Lake Shores (300 ft. buffer)	
Vegetated	8
Agriculture	4
Large complexes of semi-natural/natural vegetation Patch	10
Corridor	7

Total Scores and Ranking System

Ranking Value	Total Score
Very High	51-89
High	31-50
Medium	21-30
Low	11-20
Very Low	1-10
Does Not Rank: Ag. Land	0
Does Not Rank: >11% Impervious	-3

Figure 6. Overview of the OSPO ecological ranking protocol.

CD-ROM Contents and User Notes

The OSPO information on the CD-ROM is provided in three formats: (1) a set of 26 PDF format maps in which the OSPO data are overlaid on aerial photography and USGS topographic maps, (2) the OSPO GIS data layer (missospo shapefile) for use with GIS software, and (3) a set of four parcel based maps that identify open space protection and restoration opportunities in the MNRRA focusing primarily on undeveloped public land. In addition, the CD-ROM contains the following:

- Introduction letter
- This OSPO guidebook
- Metadata for the missospo shapefile
- The OSPO ecological ranking protocol
- The MLCCS reference manual
- Estimate of Habitat Restoration Costs for the Upper Mississippi River System (Wisconsin DNR)

This information can be directly accessed from the CD-ROM. However, for best performance, we suggest that the user copy all files and folders onto a computer hard drive. Files and folders should be copied from the CD-ROM in their existing order and into a single directory to ensure that links between files are preserved. The PDF format maps are designed for viewing and printing on a wide range of personal computers using Adobe Reader software (available for free download at http://www.adobe.com).

2003 OSPO Map Series

As illustrated in figure 7, the 26 maps in this series are distributed across 13 overlapping map regions. These regions are numbered from #1 in the north to #13 at the downstream end of the MNRRA, each corresponding with a matched pair of maps (one with aerial photographic background and the other with a USGS topographic background). A link to the Locator Map (map index) is provided by clicking on *Local Scale Locator and 24 x 36-inch Maps* in the Table of Contents on page two of the PDF version of this guide. The map index provides direct links to the 26 local scale maps by clicking on the region you wish to view. The maps are arranged as individual pages, allowing the user to "page up" and "page down" between the map panels. Clicking on the locator map's green title block returns the viewer to the guidebook and clicking on the green title block in any of the 26 local scale maps returns the viewer to the locator map. This series of maps is a snapshot of the ecological value of land within the MNRRA based on the OSPO ranking protocol. It can be used by local partners for park, open space, and other general land use planning activities. Figure 8 on the following page provides some additional information about this map series.

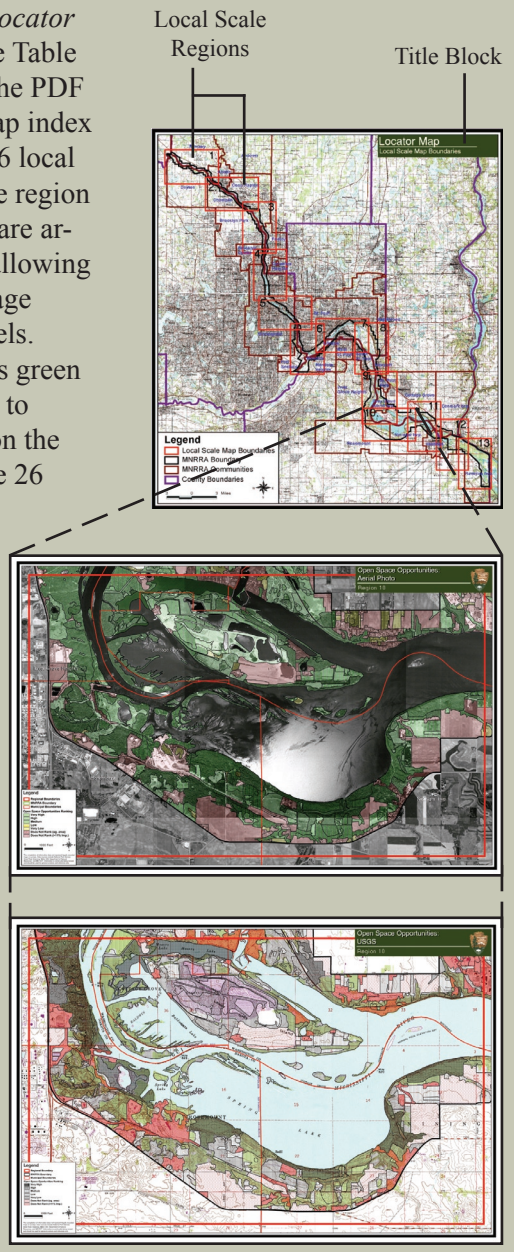

Figure 7: (top) local scale locator map (map index); (middle) OSPO data on aerial photograph; (bottom) OSPO data on USGS topographic map.

Aerial Photograph	USGS Topographic Quadrangle
-Photograph: 2000 Met Council	-USGS 7' series quads
-Information Rendered:	-USGS Date: 1987
OSPO Data	-Information Rendered:
Municipal Boundaries	OSPO Data
MNRRA Boundary	Municipal Boundaries
	MNRRA Boundary

Scaling information:

The digital PDF map files can be printed at different scales. Changing the scale will result in a change in format size. Below are various scales and enlargement or reduction percentages:

Scale	Print Percentage	Format Size
1:12,000	100%	24 x 36 in.
1:24,000	50%	12 x 18 in.
1:6,000	200%	48 x 72 in.

Notes: The background information in each of the map series portrays a particular moment in time. Differences in origination date (noted above) may result in variations between the information represented on a pair of maps. The background information presented in these maps is therefore intended for reference purposes only, and may not represent current conditions.

Figure 8. Information about the 2003 OSPO map series.

GIS Data Layer

The OSPO data layer (missospo shapefile) is provided on the CD-ROM for those users with GIS capabilities. This GIS layer is derived from the MNRRA MLCCS shapefile and contains MLCCS attributes, plus ranking criteria from the ecological protocol developed by Great River Greening for the MNRRA. The field "OSPO_RANK" represents the final ranking of polygons based on the cumulative total of all criteria outlined in the protocol (see figure 6, page 5). Values from this field are used as the thematic basis for the map series provided on the CD-ROM. Attributes identifying rare natural features that were used in the protocol are not included in the shapefile due to the sensitive nature of this information.

2006 Parcel Based OSPO Map Series

A series of four maps that identifies specific, parcel based open space protection and restoration opportunities in the MNRRA corridor was developed for this edition of the OSPO CD-ROM. These maps focus primarily on undeveloped land in public ownership. To produce this new map series, parcel data distributed by the Metropolitan Council was evaluated to isolate land areas in public ownership that are currently managed as open space or have the potential to be restored to open space. Privately owned lands are included if those parcels are currently being managed as open space or were identified by local communities as an open space protection opportunity. Significant opportunities may exist on other private lands, but these were not generally identified in the analysis that produced this series of maps.

These maps are designed to be printed at 42 x 36 in., but can be scaled as needed.

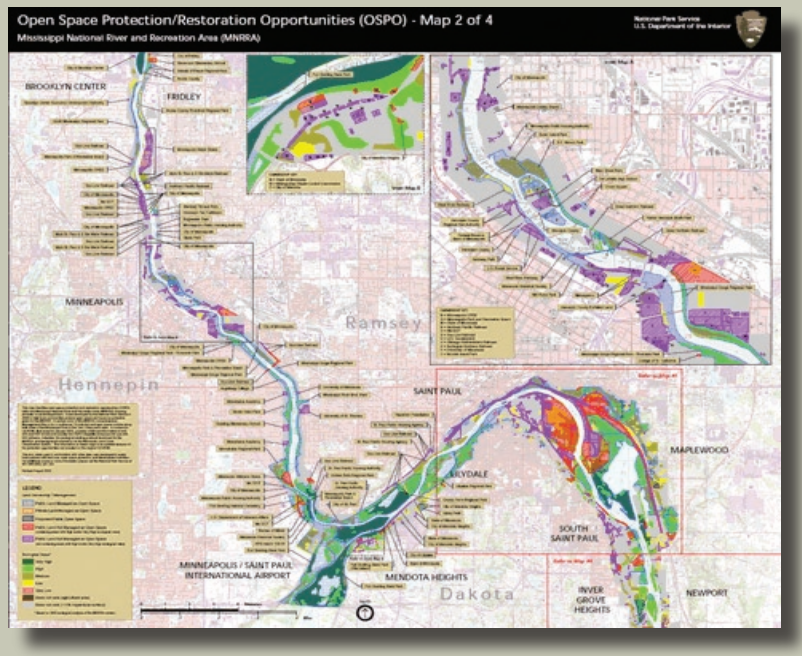

Figure 9. One of four 2006 parcel based OSPO maps.

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